PROBING ALGORITHM
FOR
FOUNDATION FIELDBUS PROTOCOL

5   ABSTRACT OF THE INVENTION

A hand-held communication control device which, when coupled to a process

control system communication bus, controls communication occurring on the bus

using a communication schedule that dictates when each of the devices coupled to the

bus will be permitted to communicate on the bus. The hand-held communication

10   control device further uses a probing algorithm to detect devices, including other

communication control devices, that are coupled to the bus. The probing algorithm

causes the hand-held communication control device to select an address from one of a

set of three address lists to which a probe node message is then transmitted to detect

the presence of a device at that address. One of the address lists is reserved for

15   communication control devices and uses only a limited number of maximum possible

addresses. The probe addresses are selected from each of the three address lists in a

sequential manner and from among the three address lists in an alternating manner so

that, when the communication control device takes control of a bus formerly

controlled by another communication control device, the hand-held communication

20   control device detects the presence of the other communication control device and

relinquishes control of the bus to the other communication control device in a timely

manner.